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Coastal Engineering Technical Note

WALKWAY CONSTRUCTED ON RUBBLE COASTAL STRUCTURES

PURPOSE: To describe the use of recreational walkways constructed on coastal rubble-mound structures and to present a typical design.

GENERAL: A walkway constructed on jetties, groins, and breakwater structures provides a low-cost recreational facility for such activities as fishing and walking/sightseeing. Approximately half of all Corps coastal and navigation structures (including rubble-mound and other types of structures) in the United States are presently used by the public for fishing and related recreational activities, according to a study by the U. S. Army Engineer Institute for Water Resources (1984). Most of the coastal structures used by the public have been modified to provide safer or easier access, but only about 20 percent have walkways. These walkways may provide some individuals, especially those without boats, their only opportunity to engage in marine-related recreation in coastal areas where large amounts of shoreline are privately owned.

Fishing from rubble-mound structures seems to be the most popular recreational activity associated with these walkways. This can be attributed, in part, to the attraction rubble-mound structures have for many species of fish since quarrystone provides places for attachment of marine organisms which are eaten by the larger fish.

Demand for fishing-walkway types of facilities can be expected to increase in the future since the trend is toward more leisure time.

EXAMPLE: The recently constructed jetty system at Murrells Inlet, South Carolina, included jetties on both sides of the inlet and a fishing walkway on the south jetty. The north jetty is a weir-type structure which is less

adaptable to walkway construction. Figure 1 shows a section of the south jetty with the fishing walkway (US Army Engineer District, Charleston, 1975). The jetty walkway was constructed with asphalt pavement and extended the 3,600-ft length of the south jetty. The walkway width was established at 8 ft so that trucks carrying materials and equipment could use the jetty during construction and maintenance operations of the project. The large voids between the 6-to 8-ton armor stone were filled with smaller leveling stones and asphaltic concrete grout extending into the structure about 3 ft. The grout was then capped with about a 4- to 6-in. layer of hot mix asphalt. While this surface is somewhat flexible, rubble-mound structures tend to shift under wave attack; therefore, frequent pavement maintenance may be required. However, after over 4 years, the Murrells Inlet jetty walkway has needed only minor repair.

Although the walkway at Murrells Inlet does not have safety handrails, that addition might encourage more public use. However, of all the publicly-used coastal structures which have been constructed or modified by the Corps of Engineers, only about one-fourth have been equipped with handrails. If only one handrail is installed, generally it should be placed on the beach side of the jetty structure to avoid impeding access to the deepwater inlet side which is fished more extensively. Fishing from the jetty walkway is difficult due to the side slopes of the structure. As a result, fishermen climb down nearer the waterline where they may be in danger from wave action and slippery surfaces.

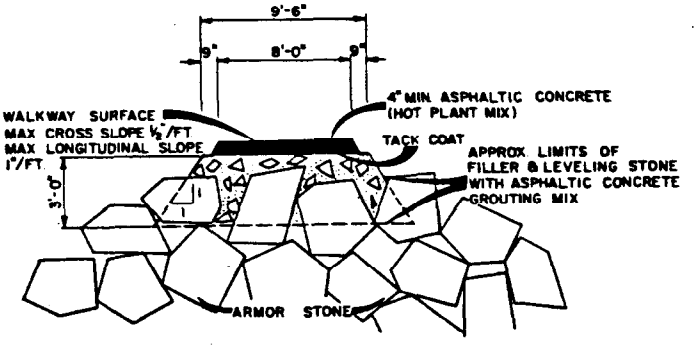

Figure 1. Fishing Walkway Section

Warning signs should be posted indicating danger zones and the hazards that adverse weather could create if a user is caught out on the jetty during a storm or other high water and/or wave conditions. These signs should be frequently inspected and adequately maintained.

REFERENCES

U. S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES, "Study of Public Use of Jetties, Groins, and Breakwaters for Recreational Activities," Policy Study 84-PS1, Fort Belvoir, VA, April 1984.

U. S. ARMY ENGINEER DISTRICT, CHARLESTON, "Murrells Inlet, S. C. Navigation Project," General Design Memorandum No. 1, Charleston, S. C., December 1975.